

WHAT IS CLAIMED IS:

1. A method for preparing polycarbonate resin comprising:

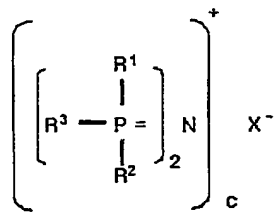
polymerizing a starting material including dihydroxy compound and carbonic acid diester in the presence of catalyst including nitrogen containing
 5 organic alkali compound or mixture of nitrogen containing organic alkali compound and alkali metal- or alkaline earth metal-containing compound.

2. The method for preparing polycarbonate resin according to Claim 1,
 wherein the nitrogen containing organic alkali compound is phosphoranylidene
 10 ammonium salt.

3. The method for preparing polycarbonate resin according to Claim 2,
 wherein the polymerizing comprises transesterifying the starting material
 including dihydroxy compound and carbonic acid diester in the presence of the
 15 catalyst.

4. The method for preparing polycarbonate resin according to Claim 3,
 wherein the phosphoranylidene ammonium salts is quaternary ammonium
 represented by the following Chemical Formula 1:

20 Chemical Formula 1



, wherein:

R^1 , R^2 and R^3 are linear or branched alkyl or cycloalkyl, substituted or non-substituted aryl, or substituted or non-substituted arylalkyl, and any two of R^1 , R^2 and R^3 may form a ring by chemical bonding;

5 X is a halogen atom, hydroxy, alkyloxy, aryloxy, alkylcarbonyloxy, aryl carbonyloxy, HCO_3 , CO_3 or BR^4_4 (R^4 is a hydrogen atom or a hydrocarbon like alkyl or aryl); and

c is 2 if X is CO_3 , and 1 if X is not CO_3 .

10 5. The method for preparing polycarbonate resin according to Claim 3, wherein the phosphoranylidene ammonium salts is used in 10^{-1} to 10^{-6} mol for 1 mol of the dihydroxy compound.

15 6. The method for preparing polycarbonate resin according to Claim 3, wherein the mixture of phosphoranylidene ammonium salts and alkali metal- or alkaline earth metal-containing compound is used in 10^{-1} to 10^{-8} mol for 1 mol of the dihydroxy compound.

20 7. The method for preparing polycarbonate resin according to Claim 3, wherein the alkali metal- or alkaline earth metal-containing compound is used in 10^{-3} to 10^{-8} mol for 1 mol of the dihydroxy compound.

8. The method for preparing polycarbonate resin according to Claim 3, wherein the carbonic acid diester and the dihydroxy compound are included in

the starting material in a molar ratio of 0.9 to 1.5.

9. The method for preparing polycarbonate resin according to Claim 3,
further including adding one or more additives selected from a group consisting of
5 terminating agent, branching agent and antioxidizing agent.

10. The method for preparing polycarbonate resin according to Claim 9,
wherein the terminating agent is used in 0.01 to 10 mol% for 1 mol of the
dihydroxy compound.
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11. The method for preparing polycarbonate resin according to Claim 3,
wherein the transesterifying is performed at a temperature in a range of 100°C to
330°C.

15 12. The method for preparing polycarbonate resin according to Claim 3,
wherein the transesterifying is performed at a pressure in a range of 1 atm to 10
atm initially and thereafter at a pressure in a range of 0.1 mbar to 100 mbar.

13. The method for preparing polycarbonate resin according to Claim 3,
20 wherein the transesterifying is performed for a time period in a range of 0.2 hours
to 10 hours.

14. A method for preparing polycarbonate resin comprising:
transesterifying a starting material including dihydroxy compound and

carbonic acid diester in the presence of polymerization catalyst including phosphoranylidene ammonium salts or mixture of phosphoranylidene ammonium salts and alkali metal- or alkaline earth metal-containing compound to produce polycarbonate prepolymer; and

5 solid-state polymerizing the polycarbonate prepolymer.

15. The method for preparing polycarbonate resin according to Claim 14, wherein the phosphoranylidene ammonium salts is used in 10^{-2} to 10^{-8} mol for 1 mol of the dihydroxy compound.

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16. The method for preparing polycarbonate resin according to Claim 14, wherein the carbonic acid diester is used in 0.9 to 2.5 mol for 1 mol of the dihydroxy compound.

15 17. The method for preparing polycarbonate resin according to Claim 14, wherein the transesterifying is performed at a temperature in a range of 50°C to 350°C; at a pressure in a range of 0.1 mbar to 100 mbar; and for a time period in a range of 1 minute to 10 hours.

20 18. The method for preparing polycarbonate resin according to Claim 14, further including crystallizing the polycarbonate prepolymer prior to the solid-state polymerizing.

19. The method for preparing polycarbonate resin according to Claim 18,

wherein the crystallizing includes:

dissolving the polycarbonate prepolymer in a solvent;

evaporating the solvent; or

adding a poor solvent against the polycarbonate prepolymer to

5 precipitate solid polycarbonate prepolymer.

20. The method for preparing polycarbonate resin according to Claim 18,
wherein the crystallizing includes heating the polycarbonate prepolymer at a
temperature higher than a glass transition temperature of the polycarbonate resin
10 and lower than a melting temperature of the polycarbonate prepolymer.

21. The method for preparing polycarbonate resin according to Claim 14,
further including one or more additives selected from a group consisting of
terminating agent, branching agent and antioxidizing agent during the solid-state
15 polymerizing.

22. The method for preparing polycarbonate resin according to Claim 14,
wherein the solid-state polymerizing includes heating the polycarbonate
prepolymer in an inert gas atmosphere and at a temperature above a glass
20 transition temperature of the polycarbonate resin and below a melting
temperature of the polycarbonate prepolymer.